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Shibib 38-7

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): M.A. Shibib et al.
Case: 38-7
Serial No.: 10/675,633
Filing Date: September 30, 2003
Group: 2826
Examiner: Remmon R. Forde

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Signature: Spina L. Chulpis Date: July 15, 2004

Title: Metal-Oxide-Semiconductor Device Including
a Buried Lightly-Doped Drain Region

TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith is the following document relating to the above-identified patent application:

(1) Response to Restriction Requirement.

There is no additional fee due in conjunction with the response. In the event of any non-payment or improper payment of a required fee, the Commissioner is hereby authorized to charge or to credit **Ryan, Mason & Lewis, LLP Deposit Account No. 50-0762** as required to correct the error.

Respectfully submitted,

Wayne L. Ellenbogen
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90 Forest Avenue
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(516) 759-7662

Date: July 15, 2004



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Signature:

Lisa L. Vulpis

Date: July 15, 2004

Title: Metal-Oxide-Semiconductor Device Including
a Buried Lightly-Doped Drain Region

RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In an Office Action dated June 15, 2004, the Examiner required restriction of claims 1-24 to one of the following two groups of claims: (i) claims 1-12 (Group I); and (ii) claims 13-24 (Group II). Specifically, the Examiner contends that the inventions set forth in Groups I and II are distinct in that "the process as claimed can be used to make other and materially different product" and that "the product as claimed can be made by another and materially different process" (Office Action; page 2, paragraph 2). Applicants respectfully disagree with this contention and respectfully request reconsideration and withdrawal of the requirement for restriction for at least the reasons given below.

Applicants submit that the apparatus set forth in claims 1 and 10 cannot be made by a process other than and materially different from the method set forth in claim 13 and that the method of claim 13 cannot be used to form a product other than and materially different from the product set forth in claims 1 and 10. Accordingly, Applicants assert that claims 1, 10 and 13 should be examined together. The Examiner provides an example in an attempt to show distinctness of the two

indicated groups of claims, stating that “the undefined method of forming the LDD region could have been formed by ion implantation” (Office Action; page 2, paragraph 2). While it may be true that claim 13 does not limit the exact fabrication process used to form the buried LDD region or the second LDD region, claim 13 does specify, for example, the relationship between the buried LDD region, the second LDD region, and the gate in the MOS device.

Specifically, the table below illustrates the correspondence between the elements of claims 1 and 13. Although the assignment of first and second conductivity types in claim 1 is reversed when compared to claim 13, the designation of first and second conductivity types is arbitrary.

CLAIM 1	CLAIM 13
“a buried lightly-doped drain (LDD) region of the second conductivity type formed in the semiconductor layer between the gate and the drain region, the buried LDD region being spaced laterally from the drain region”	“forming a buried lightly-doped drain (LDD) region of a first conductivity type in a semiconductor layer of a second conductivity type”
“a gate formed proximate an upper surface of the semiconductor layer and at least partially between the source and drain regions”	“forming a gate on an upper surface of the semiconductor layer”
“a second LDD region of the first conductivity type formed in the buried LDD region and proximate the upper surface of the semiconductor layer, the second LDD region being self-aligned with the gate and spaced laterally from the gate such that the gate is non-overlapping relative to the second LDD region”	“forming a second LDD region of the second conductivity type in the buried LDD region and proximate the upper surface of the semiconductor layer, the second LDD region being self-aligned with the gate and spaced laterally from the gate such that the gate is non-overlapping relative to the second LDD region”
“a source region of a second conductivity type formed in the semiconductor layer; a drain region of the second conductivity type formed in the semiconductor layer and spaced apart from the source region”	“forming source and drain regions of the first conductivity type in the semiconductor layer, the gate being formed at least partially between the source and drain regions”

As apparent from the above table, each of the steps recited in the method of claim 13 has a corresponding element in the apparatus set forth in claims 1 and 10. Applicants submit that the apparatus set forth in claims 1 and 10 cannot be made by a process other than and materially

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different from the process set forth in claim 13, and that the process of claim 13 cannot be used to form a product other than and materially different from the product set forth in claims 1 and 10. Accordingly, the inventions set forth in the subject claims are properly linked to one another and should be considered together. Withdrawal of the restriction requirement in the present application is therefore respectfully solicited.

Notwithstanding the above traversal, Applicants hereby provisionally elect the claims of Group I, namely, claims 1-12, for prosecution on the merits.

It is believed that there is no fee due in conjunction with the present response. In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Ryan, Mason & Lewis, LLP Deposit Account No. 50-0762** as required to correct the error.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Wayne L. Ellenbogen", with a long horizontal flourish extending to the right.

Date: July 15, 2004

Wayne L. Ellenbogen
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